REMARKS

INTRODUCTION:

In accordance with the foregoing, claims 12, 13, and 16 have been canceled without prejudice or disclaimer. No new matter is being presented, and approval and entry are respectfully requested.

Claims 1-11, 14-15 and 17 are pending and under consideration. Reconsideration is respectfully requested.

DOUBLE PATENTING:

In the Office Action, at page 2, the Examiner submitted that claims 12, 13, and 16 would be objected to for double patenting if claims 1, 13, and 5, respectively, were found allowable.

Claims 12, 13 and 16 have been cancelled without prejudice or disclaimer. Hence, the Examiner's concerns with claims 12, 13 and 16 are now moot.

REJECTION UNDER 35 U.S.C. §112:

In the Office Action, at pages 2-3, claims 1-6 were rejected under 35 U.S.C. §112, second paragraph, for the reasons set forth therein. This rejection is traversed and reconsideration is requested.

It is respectfully submitted that, as described in paragraphs [0013]-[0014], [0031] and [0038] of the specification, recited below for the convenience of the Examiner, the thermoplastic resin coats the colorant, and then the thermoplastic resin on the colorant is bonded to the organosol:

> [0013] Accordingly, to solve the above-described and/or other problems, it is an aspect of an embodiment of the present invention to provide a liquid ink composition, and a method for using same, using an organosol, in which a carbon black pigment as a colorant is coated with a thermoplastic resin to improve affinity for the organosol and thus, to increase the size of particles existing in the liquid ink so that the particles may be readily electrically controlled, whereby the carbon black pigment is prevented from being attached to a undesired non-image area on a photoconductor and being transferred to paper . Thus, a clear image is produced upon printing, image quality is improved and contamination of other parts is prevented in a printer. (emphasis added)
>
> [0014] To accomplish the above and/or other aspects and/or other features of the present invention, a liquid ink composition comprises a colorant; a charge control agent to regulate electrostatic properties of the colorant; and an organosol to disperse and bind the colorant and the charge control agent, in which the colorant is coated with a thermoplastic resin to improve binding to the organosol. (emphasis added)
>
> [0031] Examples of the thermoplastic resin to coat the colorant include vinyl chloride resins, vinylidene chloride resins, vinyl acetate resins, polyvinyl acetal resins, styrene-based resins, methacrylic acid-based resins, polyolefin resins, polyacrylate resins,

> polyester resins, epoxy-based resins, urethane-based resins and the like. The preferred thermoplastic resins to coat the colorant in the liquid ink composition according to an embodiment of the present invention are olefin-based resins containing a carboxyl group or an ester group because the organosol typically comprises a copolymer composed of acrylate or methacrylate, in which both acrylate and methacrylate have –COOR as a side chain attached to an olefinic main chain. In other words, the organosol is an olefin resin having an ester group in a broad sense. Therefore, to have affinity for the organosol, resins having a similar structure to the organosol, i.e., olefin-based resins are preferably used. Preferred examples of these olefin-based resins may include any one thermoplastic resin selected from an polyethylene vinylacetate, polyethylene vinylacetate/acetic acid terpolymers, polyethylene acrylic acid copolymers, polyethylene methacrylic acid copolymers, polyethylene acrylate copolymers, polyethylene methacrylate copolymers, polyacrylate resins, polymethacrylate resins, polystyrene acrylic acid copolymers, polystyrene methacrylic acid copolymers, polystyrene acrylate copolymers, polystyrene methacrylate copolymers, rosin ester-based resin and modified rosin ester-based resins, but are not limited thereto. (emphasis added)
>
> [0038] The organosol is a copolymer composed of acrylate or methacrylate. Both acrylate and methacrylate have a main-chain of olefin and a side chain of –COOR group attached to the main chain. Therefore, in a broad sense, the organosol is an olefin-based resin containing an ester group. A compound that is compatible with such an organosol preferably has a structure similar to the structure of the organosol. Thus, the thermoplastic resin for coating the colorant may be readily bonded to the organosol since the carboxyl group or ester group in the resin has effective affinity for the –COOR group of the organosol, and the colorant coated with the thermoplastic resin shows improved affinity for the organosol. (emphasis added)

Hence, it is respectfully submitted that it is clear that the thermoplastic resin is bonded to the colorant, and then the thermoplastic resin also bonds to the organosol.

Claim 1 recites "the colorant is coated with a thermoplastic resin to improve binding to the organosol." The chemical structure of the thermoplastic resin that facilitates binding to the organosol is described, for example, above. Thus, it is respectfully submitted that the language of claim 1 is clear to one skilled in the art. Hence, it is respectfully submitted that claim 1 particularly points out and distinctly claims the subject matter which applicants regard as the invention under 35 U.S.C. §112, second paragraph. Since claims 2-6 depend from claim 1, claims 2-6 particularly point out and distinctly claim the subject matter which applicants regard as the invention under 35 U.S.C. §112, second paragraph, for at least the reasons claim 1 particularly points out and distinctly claims the subject matter which applicants regard as the invention under 35 U.S.C. §112, second paragraph. Thus, claims 1-6 are respectfully submitted to be in allowable form under 35 U.S.C. §112, second paragraph.

REJECTION UNDER 35 U.S.C. §103:

A. In the Office Action, at pages 3-5, claims 1-6 and 11-17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Moudry et al. (US Patent Publication

2005/0160938; hereafter, Moudry) in view of Brechlin et al. (USPN 4,157,974; hereafter, Brechlin). The reasons for the rejection are set forth in the Office Action and therefore not repeated. The rejection is traversed and reconsideration is requested.

Claims 12, 13 and 16 have been canceled without prejudice or disclaimer.

The Examiner admits that, in Moudry, "The inventors, however, do not specify that the colorants used be first encapsulated by another polymer resin before binding to the organosol." Hence, Moudry does not teach or suggest the ink composition recited in independent claims 1 and 11 of the present invention.

It is respectfully submitted that Brechlin recites "a homogeneous particulate mixture of at least one pigment and at least one copolymer of vinyl toluene or styrene with an ester of acrylic or methacrylic acid" (emphasis added) (see, for example, claim 1 of Brechlin). That is, as recited on page 2, line 67 through page 3, approximately line 2 (is blacked out in formatted version of patent) of Brechlin, "However, it has been found specifically that toners which are as finely divided as possible are necessary to achieve good resolution of the image coupled with good stability" (emphasis added). Hence, Brechlin teaches away from the present invention by teaching a homogeneous particulate mixture of at least one pigment and at least one copolymer of vinyl toluene or styrene, which necessarily must be as finely divided as possible, and which is different from a liquid ink composition comprising: a colorant; a charge control agent to regulate electrostatic properties of the colorant; and an organosol to disperse and bind the colorant and the charge control agent, in which the colorant is coated with a thermoplastic resin to improve binding to the organosol, as is recited in independent claim 1, and similarly in independent claim 11 of the present invention. That is, in the present invention, the colorant is coated with a thermoplastic resin, which is then bonded to an organosol rather than being a homogeneous particulate mixture. Hence, as recited in paragraph [0056] of the specification of the present invention, reproduced below for the Examiner's convenience, in the present invention particles of increased particle size are utilized rather than finely divided particles:

> [0056] As is described above, according to an embodiment of the present invention, using a liquid ink composition, in which a carbon black is coated with a thermoplastic resin having an affinity for an organosol so that the carbon black may be readily bonded to the organosol, results in an increase of average particle size of particles existing in the liquid ink composition, so that electrical control of the particles is facilitated, improving the definition of a printed image, and preventing the particles of the carbon black pigment alone from existing in a printer, thus preventing contamination of the inside of the printer; and a method for producing the same. (emphasis added)

Since Brechlin teaches away from the present invention, Brechlin cannot be combined with Moudry. Hence, it is respectfully submitted that independent claims 1 and 11 of the present invention are patentable under 35 U.S.C. §103(a) over Moudry et al. (US Patent Publication

2005/0160938) in view of Brechlin et al. (USPN 4,157,974). Since claims 2-6, 14, 15 and 17 depend from independent claims 1 and 11, respectively, claims 2-6, 14, 15 and 17 are patentable under 35 U.S.C. §103(a) over Moudry et al. (US Patent Publication 2005/0160938) in view of Brechlin et al. (USPN 4,157,974) for at least the reasons independent claims 1 and 11 are patentable under 35 U.S.C. §103(a) over Moudry et al. (US Patent Publication 2005/0160938) in view of Brechlin et al. (USPN 4,157,974).

B. In the Office Action, at pages 5-6, claims 1-6 and 11-17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Moudry et al. (US Patent Publication 2005/0160938; hereafter, Moudry) in view of Ohsawa (USPN 6,679,597- the Office Action recites USPN 6,679,567, which the Examiner confirmed on December 18, 2006 was a typographical error; hereafter, Ohsawa). The reasons for the rejection are set forth in the Office Action and therefore not repeated. The rejection is traversed and reconsideration is requested.

Claims 12, 13 and 16 have been canceled without prejudice or disclaimer.

The Examiner admits that, in Moudry, "The inventors, however, do not specify that the colorants used be first encapsulated by another polymer resin before binding to the organosol." Hence, Moudry does not teach or suggest the ink composition recited in independent claims 1 and 11 of the present invention.

Ohsawa discloses "Inkjet printing method having the following steps: ejecting an oily ink comprising particles to a printing medium with use of an electrostatic field according to image data signals to form an image directly on the printing medium; and fixing the image to obtain a printed matter, wherein a prevention of an aggregation and/or a precipitation of the particles is conducted at least during ink circulation, or an aggregate and/or a deposit of the particles formed at least due to a suspension of ink-flow is redispersed" (emphasis added) (see also claim 1 of Ohsawa). Independent claims 1 and 11 of the present invention do not utilize oil in the ink composition. Hence, Ohsawa teaches away from the present invention.

Since Ohsawa teaches away from the present invention, Ohsawa cannot be combined with Moudry. Hence, it is respectfully submitted that independent claims 1 and 11 of the present invention are patentable under 35 U.S.C. §103(a) over Moudry et al. (US Patent Publication 2005/0160938) in view of Ohsawa (USPN 6,679,597). Since claims 2-6, 14, 15 and 17 depend from independent claims 1 and 11, respectively, claims 2-6, 14, 15 and 17 are patentable under 35 U.S.C. §103(a) over Moudry et al. (US Patent Publication 2005/0160938) in view of Ohsawa (USPN 6,679,597) for at least the reasons independent claims 1 and 11 are patentable under 35 U.S.C. §103(a) over Moudry et al. (US Patent Publication 2005/0160938) in view of Ohsawa (USPN 6,679,597).

C. In the Office Action, at pages 6-8, claims 1, 4-12, and 15-17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Brechlin et al. (USPN 4,157,974; hereafter, Brechlin) in view of Moudry et al. (US Patent Publication 2005/0160938; hereafter, Moudry). The reasons for the rejection are set forth in the Office Action and therefore not repeated. The rejection is traversed and reconsideration is requested.

Claims 12 and 16 have been canceled without prejudice or disclaimer.

As noted above, Brechlin recites "a homogeneous particulate mixture of at least one pigment and at least one copolymer of vinyl toluene or styrene with an ester of acrylic or methacrylic acid" (emphasis added) (see, for example, claim 1 of Brechlin). That is, as recited on page 2, line 67 through page 3, approximately line 2 (is blacked out in formatted version of patent) of Brechlin, "However, it has been found specifically that toners which are as finely divided as possible are necessary to achieve good resolution of the image coupled with good stability" (emphasis added). Hence, Brechlin teaches away from the present invention by teaching a homogeneous particulate mixture of at least one pigment and at least one copolymer of vinyl toluene or styrene, which is different from a liquid ink composition comprising: a colorant; a charge control agent to regulate electrostatic properties of the colorant; and an organosol to disperse and bind the colorant and the charge control agent, in which the colorant is coated with a thermoplastic resin to improve binding to the organosol, as is recited in independent claim 1, and similarly in independent claims 7 (method) and 11 of the present invention. That is, in the present invention, the colorant is coated with a thermoplastic resin, which is then bonded to an organosol rather than being a homogeneous particulate mixture. Also, as agreed by the Examiner "The inventors, however, do not teach the use of an organosol to bind the toner particles."

In addition, as noted by the Examiner, in Brechlin, after the pigment is encapsulated, it is homogenized, crushed, and the crushed particles are dyed. Independent claims 1, 7 and 11 of the present invention do not recite homogenizing, crushing and dying, as is disclosed in Brechlin. As recited in paragraph [0056] of the specification of the present invention, reproduced above, in the present invention particles of increased particle size are utilized rather than finely divided particles. Thus, it is respectfully submitted that Brechlin teaches away from independent claims 1, 7 and 11 of the present invention and the claims dependent thereon.

The Examiner admits that, in Moudry, "The inventors, however, do not specify that the colorants used be first encapsulated by another polymer resin before binding to the organosol." Hence, Moudry does not teach or suggest the ink composition and method recited in independent claims 1, 7 and 11 of the present invention.

Since Brechlin teaches away from the present invention, Brechlin cannot be combined

with Moudry. Hence, it is respectfully submitted that independent claims 1, 7 and 11 of the present invention are patentable under 35 U.S.C. §103(a) over Brechlin et al. (USPN 4,157,974) in view of Moudry et al. (US Patent Publication 2005/0160938). Since claims 4-6, 8-10, 15 and 17 depend from independent claims 1, 7 and 11, respectively, claims 4-6, 8-10, 15 and 17 are patentable under 35 U.S.C. §103(a) over Brechlin et al. (USPN 4,157,974) in view of Moudry et al. (US Patent Publication 2005/0160938) for at least the reasons independent claims 1, 7 and 11 are patentable under 35 U.S.C. §103(a) over Brechlin et al. (USPN 4,157,974) in view of Moudry et al. (US Patent Publication 2005/0160938).

D. In the Office Action, at pages 8-9, claims 1, 4-12, and 15-17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ohsawa (USPN 6679,597; hereafter, Ohsawa) in view of Moudry et al. (US Patent Publication 2005/0160938; hereafter, Moudry). The reasons for the rejection are set forth in the Office Action and therefore not repeated. The rejection is traversed and reconsideration is requested.

Claims 12 and 16 have been canceled without prejudice or disclaimer.

It is respectfully submitted that Ohsawa discloses "Inkjet printing method having the following steps: ejecting an oily ink comprising particles to a printing medium with use of an electrostatic field according to image data signals to form an image directly on the printing medium; and fixing the image to obtain a printed matter, wherein a prevention of an aggregation and/or a precipitation of the particles is conducted at least during ink circulation, or an aggregate and/or a deposit of the particles formed at least due to a suspension of ink-flow is redispersed" (emphasis added) (see also claim 1 of Ohsawa). Independent claims 1, 7 and 11 of the present invention do not utilize oil in the ink composition. In addition, as the Examiner admits, "Ohsawa et al., however, do not teach the inclusion of an organosol." The present invention utilizes an organosol. Hence, Ohsawa teaches away from the present invention.

The Examiner admits that, in Moudry, "The inventors, however, do not specify that the colorants used be first encapsulated by another polymer resin before binding to the organosol." Hence, Moudry does not teach or suggest the ink composition and method recited in independent claims 1, 7 and 11 of the present invention.

Since Ohsawa teaches away from the present invention, Ohsawa cannot be combined with Moudry. Hence, it is respectfully submitted that independent claims 1, 7 and 11 of the present invention are patentable under 35 U.S.C. §103(a) over Ohsawa (USPN 6679,597) in view of Moudry et al. (US Patent Publication 2005/0160938). Since claims 4-6, 8-10, 15 and 17 depend from independent claims 1, 7 and 11, respectively, claims 4-6, 8-10, 15 and 17 are patentable under 35 U.S.C. §103(a) over Ohsawa (USPN 6679,597) in view of Moudry et al. (US Patent Publication 2005/0160938) for at least the reasons independent claims 1, 7 and 11 are

patentable under 35 U.S.C. §103(a) over Ohsawa (USPN 6679,597) in view of Moudry et al. (US Patent Publication 2005/0160938).

CONCLUSION:

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot, and further, that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited.

If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such issues.

If there are any underpayments or overpayments of fees associated with the filing of this Amendment, please charge and/or credit the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: February 23, 2007 By: Darleen J. Stockley

Darleen J. Stockley
Registration No. 34,257

1201 New York Avenue, N.W.
Suite 700
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501